

## Israel Zelitch

Known as “Zuni”, Yiddish for “Sonny”, to all he knew, he passed away on March 23, 2023 in Haverill, MA after contracting COVID-19.

Born in Winfield, PA in 1924, Zuni received his bachelor’s degree in Agricultural and Biological Chemistry from Pennsylvania State University in 1947 and his Ph.D. in Biochemistry from the University of Wisconsin in 1951. After completion of postdoctoral studies at NYU he became an assistant scientist at The Connecticut Agricultural Experiment Station in 1952. Zuni rose quickly through the ranks becoming Head of the Department of Biochemistry in 1963 and later Head of the Department of Biochemistry and Genetics in 1980. He was named Samuel W. Johnson Distinguished Scientist in 1974. Even after retiring in 1994 Zuni continued laboratory work and remained actively engaged in the activities of the Experiment Station.

Zuni’s research interests centered on photosynthesis in higher plants, specifically presumptive “wasteful” processes in carbon biochemistry that limit productivity. He worked on the forefront of a fast-moving and contentious field first developing in the 1950’s involving a substantial internal O<sub>2</sub>-dependent, CO<sub>2</sub>-releasing process operating in opposition to concurrent photosynthetic CO<sub>2</sub>-uptake in leaves utilizing the C<sub>3</sub> pathway of carbon metabolism typical of most crop species. Zuni’s seminal contribution was the demonstration that the substrate for this dissipative process coined “photorespiration” is an early and ubiquitous product of photosynthesis, glycolic acid. Two additional examples define his impact on science. First, his passion to exploit basic science to improve agricultural productivity led Zuni next on a visionary, yet elusive, quest to suppress photorespiration using genetics. Second, he valued a hands-on approach to science. Despite nearing retirement, he pursued a sabbatical at Yale where he learned molecular biological techniques. This effort resulted in generation of O<sub>2</sub>-resistant tobacco plants that possessed elevated levels of the enzyme catalase. Later, after retirement, he extended his early work to show that glycolic acid catabolism is essential to the survival of the naturally O<sub>2</sub>-resistant crop species *Zea mays*. This finding, published in *Plant Physiology* in 2009, sparked a revival in photorespiration research. Zuni’s contributions to science did not end at the lab bench.

Among Zuni’s numerous honors are Fellowships from the Guggenheim Foundation and The American Academy of Arts and Sciences. Zuni served on the Executive Committee of the American Society of Plant Physiologists (1973-1976) and as President of the Society over 1977-78. He was named Fulbright Distinguished Professor in 1981 and was an adjunct professor at Yale University. Zuni published his work in premier journals such as *Science*, *The Journal of Biological Chemistry*, and *Plant Physiology*. An important literary contribution was his book *Photosynthesis, Photorespiration, and Plant Productivity* published in 1971. This was required reading for newcomers to the field at the time and is still highly regarded.

As a person, Zuni was unfailingly gentlemanly and good humored. Some found him a bit irascible, but this was really just tough-mindedness. He always defended his views with evidence, logic, vigor, and patience. His persistent optimism made him a great leader for his

department. Setbacks did not slow him down and he was skillful in conveying this attitude to others. His insistence on scholarship was an inspiration to everyone in the department. Zuni was a credit to science and the Experiment Station.

Richard B. Peterson & Neil Schultes  
Dept. of Plant Pathology & Ecology  
The Connecticut Agricultural Experiment Station  
New Haven, CT USA